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*Featuring—*The Effect of Vo-Ag
on College Success

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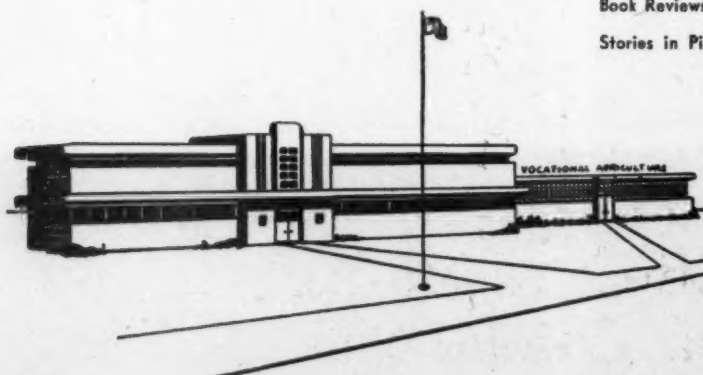
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Editorials

A Vocational Agriculture Teacher Prays

HORACE HUMMELL, Vo-Ag Instructor, Freeport, Ohio

Gracious God, Thou before Whom our own witness is on exhibit every day of our lives, we give thanks for these first fruits of Thine.

Oh, Lord God of Harvests, help us to be ever grateful for all the blessings of this life.

As we help our Future Farmers and others prepare for competition in the arena of the fairground, help us to not only place value on the well sprung rib, the pink skin neath bright wool, and the sharp withers, but also help us to teach them to fight hard with no foul plays. Win or lose, blue ribbon or yellow, help us to accept wins humbly and losses without malice or excuses to anyone.

Lord, bless the winner with grace and the loser with dignity.

Strengthen us for the remainder of the school term. May we use each day wisely so that we meet our classes with confidence, with well organized programs of instruction, and well written lesson plans.

Help us to so live that we may serve well all the hard working farmers in our communities, and that we may always stand with a humble heart. Thou know, Lord, that many of our students will become much greater than we can ever become. Broaden our minds and help us understand that our programs must be strong enough to help students to grow to full maturity as honest and courageous men.

Amen.

THE COVER PICTURE

The four young men pictured on the cover, graduates of Tipton High School, Tipton, Missouri, enrolled at the University of Missouri last summer. From left to right, those in the picture are: Larry Knipp, E. H. Brauer, David Ashley, Ralph Silvey, Roscoe R. Gibson, vocational agriculture instructor at Tipton, and Phillip Gibson. James Spencer, who also enrolled as a freshman, was not present for the picture.

All five of the entering freshmen took vocational agriculture in high school, and are now following the interests they developed. In the past 15 years, 34 per cent of the young men who took vocational agriculture in the Tipton Department have enrolled in college. Of this number 73 per cent have enrolled in the College of Agriculture.

Silvey and Ashley are completely working their way through college. Brauer has two scholarships for a

From the Editor's Desk...

What Is College Success?

The success which a student has had in college may be judged by almost as many standards as there are individuals or institutions of higher learning. Each person has a different idea as to just what college success means, and each college or university has its own set of standards. Almost automatically, one thinks of completing a difficult course of study and of graduating with a degree in a given field. However, not all think of other standards by which college success is often measured. Some think of the ease with which certain students adjust to the demands of college life, the ability to develop good habits of study and concentration, and the development of a desire to gain from college a well rounded foundation for continuing one's education.

College success also means, in the writer's thinking, the development of the ability to think clearly, to solve problems, and to choose wisely. It means developing the ability to choose a vocation which more nearly fits the potentialities of the individual student. Early specialization may rob a student of many of the desirable features of a general college education, but to leave college without a vocational goal can lead to disastrous floundering.

Still another measure of success in college is the degree to which a student has become conscious of the need for service to mankind. Some students leave college without having developed sensitivity to the needs of society or to the purposes of life at its best.

Feeling that this is a true picture of the attitudes of people toward college success, the editor asked several respondents to prepare articles for this issue based upon the measures of college success where most people agree. These measures are grades.

The question asked was whether or not college students who had taken vocational agriculture in high school did as well in college as students who had not. By basing the research upon the grade point averages made in certain subjects, the respondents reported evidence which can more nearly be accepted by all readers of each article.

Much has been said about the needs of the college bound student. Quite often, the idea is advanced that the student who is planning to enter college should not take vocational agriculture in high school because it would take time away from the "so-called" college preparatory courses. Evidence seems to refute this position. The reader is invited to study carefully the articles devoted to the grade point averages achieved by the vocational and nonvocational agriculture students in their college careers. □

College Success With and Without Vocational Agriculture in High School

RALPH E. BENDER, Teacher Education, The Ohio State University
and

DEWEY PIERCE, Executive Head, Skyview School, Stafford, Ohio

High school students with training in vocational agriculture succeed as well in college as those without such training. The findings supporting this conclusion of a recent Ph.D. degree dissertation study¹ agree with other researches that vocational agriculture students are successful in the College of Agriculture. *The unique finding of this research is that vocational agriculture students also do as well as other students in the College of Arts and Science, Commerce, Education and Engineering.* Success in college was based upon persistency in college and the scholastic achievement as measured by mean cumulative point-hour ratio.

The Procedure Followed in the Study

This study included 800 male Ohio high school graduates, 400 with and 400 without vocational agriculture. The distribution by colleges was as follows: Agriculture, 400; Arts and Sciences, 142; Commerce, 42; Education, 60; and Engineering, 156. Names of the students with vocational agriculture were obtained from census cards in the office of the Registrar and were pair-matched with students in the same college without this experience on the basis of the Ohio State Psychological Examination, and on age at time of entering college during the period 1946 to 1955 by a random sampling procedure. There was no statistically significant difference at the 1 per cent level of confidence on the t-test in college success between groups of students having one, two, three or four years of vocational agriculture, therefore, the data herein reported for vocational agriculture refer to the entire group. This group has an average of 2.65 years in vocational agriculture; 53 per cent had three or four years. Records of students over a period of 12 college quarters were studied.

¹Pierce, Dewey, *The Relation of Vocational Agriculture Experience to Scholastic Achievement at The Ohio State University*, Ph.D. Dissertation, Library, The Ohio State University, pp. 224, 1960.



Agricultural education majors look forward to an interesting and challenging career. Left to right, Bert Livingston, Charles Lifer, and Phillip Pope. All three of these men had four years in vocational agriculture and did very well in college.

High School Preparation

The students with vocational agriculture who entered the five undergraduate colleges did not complete as many years of high school chemistry, English, mathematics and physics as those students without this experience. The average number of years completed by the students with and without vocational agriculture respectively was as follows: .65 and .73, chemistry; 3.5 and 3.6, English; 1.9 and 2.5, mathematics; and .55 and .63, physics.

A greater percentage of the students with vocational agriculture ranked in the upper one-third of the high school graduating class than was the case for students without this experience. The percentages were 40 and 31, respectively. Incidentally, the percentage from the upper third who entered the College of Agriculture was not as high as in the other colleges.

Approximately 50 per cent of the students in the five undergraduate colleges who had vocational agriculture were from high schools with less

than 200 enrollment, whereas about 50 per cent of those students without this experience came from schools with enrollments of above the 500 figure. The same situation was found of the students in the agricultural and nonagricultural colleges.

More students from both groups came from an area running through the state from southwest to northeast than came from the northwest and southeast sections of the state. However, students who entered the College of Agriculture were more evenly distributed over the state than were those students who entered other colleges.

College Placement Tests

A greater percentage of those students with vocational agriculture were required to take remedial English and mathematics than those students without this experience. This may seem somewhat strange because a higher percentage of the vocational agriculture group ranked in the upper one-third of their high school class. This

may be accounted for by the influence of grades received in agriculture. On the other hand, the vocational agriculture group had slightly less training in English and mathematics.

Students with four years of high school English were less likely to take remedial College English than those students who had only three years of high school English. Likewise, it was found that each additional year of high school mathematics completed was associated with a lower per cent of students being required to take remedial mathematics. Again, it was found that a higher percentage of the students entering the College of Agriculture needed to pursue a remedial program than those who entered the noncolleges of agriculture.

Persistence in College

Students with vocational agriculture were more persistent in college than were those students without this experience, as indicated by a higher percentage of those who graduated and a lower percentage who dropped out, or were out under the rules as at the end of the 12 quarter period. The remaining students were classified as "still in school" in the college entered, or "transferred."

A total of 22 per cent of the vocational agriculture experienced group graduated, and 10 per cent were still in school, as compared to 16 per cent of the other group who graduated, with 14 per cent still in school at the end of 12 quarters. It was interesting to note that in the College of Agriculture the percentage graduating with vocational agriculture was 34 and those without vocational agriculture was 22. Of each 100 vocational agriculture students starting to college, 55 of them dropped out or were out under the rules. Whereas, 62 of the non-vocational agriculture group had a similar circumstance.

An analysis of the group who transferred from their original college revealed that only 5 per cent of the vocational agriculture group in the College of Agriculture transferred, however, 22 per cent of the vocational agriculture students who entered nonagricultural colleges transferred. This seems to indicate that the vocational agriculture boy who enrolls in some field other than agriculture is indefinite or undecided about the objectives to pursue.

Students in the upper third of their high school class were more college persistent than those in the middle or lower one-third; the higher the Ohio

State Psychological Examination rating, the greater the college persistency; and students who were placed in regular college English were more persistent in college than students requiring remedial English. Little or no relation appeared to exist between size of high school or age entered and the persistency in college.

Scholastic Achievement

Scholastic achievement was measured by mean accumulative point-hour ratios on the basis of A = 4, B = 3, C = 2, and D = 1. Some of the findings concerning scholastic achievement as related to various high school and college factors are as follows:

Overall Scholastic Achievement—The cumulative point-hour ratios at the end of the twelfth quarter by colleges were as follows:

	Voc. Agr.	Non-Voc. Agr.
Agriculture	2.66	2.58
Arts & Science	2.69	2.40
Commerce		
& Adm.	2.23	2.44
Education	2.75	2.76
Engineering	2.80	2.32
Total Group	2.63	2.51

Although there were variations between the groups of students in each of the colleges, no statistically significant difference at the one per cent level of confidence was found.

Selected Subject Matter Areas—No statistically significant difference was found between the mean point grades of those students with and without vocational agriculture who were enrolled in the College of Agriculture in any of the 19 selected subject areas ranging alphabetically from agricultural biochemistry through zoology.

Occupation—Students who were sons of farmers were as successful in college as indicated by the twelfth quarter mean cumulative point-hour ratios as students who were sons of nonfarmers. This was true in the non-agricultural colleges as well as in the College of Agriculture. The differences were not statistically significant.

Age Entered College—There was little or no relation between scholastic achievement in college and age entered college.

Rank in High School—Students who were in the upper one-third of their high school class earned higher mean cumulative point-hour ratios (2.72) in college than those students in the

middle (2.39) or lower one-third (2.24) of their high school class.

Size of High School—There was little or no relation between scholastic achievement in college and size of high school.

Chemistry—Students with no high school chemistry had a 1.54 mean point grade in their first college chemistry course. This difference was statistically significant at the 1 per cent level of confidence on the t-test.

The mean point grades of students with and without vocational agriculture in their first college chemistry course were practically the same: 1.90 and 1.91.

English—Students with three years of high school English had a 1.82 mean point grade and those with four years of high school English had a 1.90 mean point grade in their first college level English course. This difference was not statistically significant.

The mean point grades of students with and without vocational agriculture in their first college level English course respectively were: 1.94 and 1.84, for the total group; 1.90 and 1.80 for the agricultural college, and 1.97 and 1.87 for the four nonagricultural colleges.

Mathematics—Those students with one year of high school mathematics received a 1.55 mean point grade and those students with four years of high school mathematics received a 2.32 mean point grade in the first college level mathematics course. This difference was significant at the 1 per cent level.

The mean point grades of students with and without vocational agriculture in their first college level mathematics course respectively were: 1.90 and 1.67 for the total group; 1.95 and 1.73 for the agricultural college; and 1.85 and 1.63 for the nonagricultural colleges. The differences were not statistically significant.

Physics—Students without high school physics received a mean point grade of 2.19 in the first college physics course and those with one year of high school physics received a 2.32 mean point grade.

The mean point grades of students with and without vocational agriculture in their first college level physics course respectively were: 2.22 and 1.88 for the total group; 1.85 and 2.10 for the agricultural college; and 2.37 and 1.76 for the four nonagricultural colleges, this difference being significant.

Implications

This study implies the following:

1. Going to college should not be a limiting factor for a student who desires to study vocational agriculture in high school. Courses in vocational agriculture are acceptable as preparation for students who pursue a program in either an agricultural or a non-agricultural college. It is well for college-bound students in vocational agriculture to schedule courses in advanced mathematics, science, and English. An effective program for most students can be developed through a combination of the so-called "college preparatory" and vocational agriculture rather than one or the other. This necessitates schools large enough to provide a broad curriculum so that courses can be scheduled.
2. Students who expect to be accepted by and graduated from a college should be in the upper or middle one-third of their high school graduating class. Teachers and guidance personnel should inform students that they have little chance of being accepted in college or graduating therefrom if they are in the lower one-third of their class.
3. Experience in farming has little or no relation to success in college. This implies that farm boys should consider opportunities other than in agriculture and non-farm boys should consider opportunities provided through the college of agriculture when selecting colleges.
4. Much needs to be done in guidance and counseling as well as in the development of more appropriate high school, community college, and college programs. This includes competency in teaching in addition to the curricula. Undoubtedly, there is waste of human and natural resources with only four graduates of each ten entering college students. □

Some Comparisons of High School Graduates Who Took Vocational Agriculture and Other Male Graduates¹

GEORGE P. DEYOE, Teacher Education, University of Illinois



How do high school graduates who took vocational agriculture compare with other male graduates in educational attainments and in other respects? A study recently completed compares these two groups of male graduates in general intelligence, scholastic achievement, subjects taken in high school, participation in extra-class activities, college attendance, and types of employment the first year after graduation.²

This study should help to confirm or disprove certain concepts held by some people and should shed light on some phases for which information has been meager or nonexistent. The information provided should provide encouragement as well as challenges to teachers of vocational agriculture. The study has implications for teachers, guidance personnel, school administrators, and various others

interested in the products and programs of public high schools.

A total of 325 or approximately 20 per cent of the 1,599 males graduates in 1957 from 36 Illinois high schools included in the study had taken one year or more of vocational agriculture. Sixty-three per cent of these had taken three or four years of vocational agriculture; 15 per cent, two years, only; and 22 per cent, one year, only.

Intelligence Levels and Scholastic Achievement

Twenty-three per cent of the male graduates who had taken vocational agriculture had intelligence quotients of 111 or more, compared to 38 per cent of the male graduates who had taken no vocational agriculture. Slightly over half of group who had taken vocational agriculture and two-thirds of the others had intelligence quotients of 100 or more. In general, the more years of vocational agriculture, the larger were the percentages in the lower categories of intelligence. However, the percentages in both groups in the 100 to 110 range in IQ were almost exactly the same.

It is important to note that a wide range of capacities is represented

among enrollments in vocational agriculture, and that some in the top ranges are usually included. Hence, teachers of vocational agriculture must be alert to adapt instruction to wide variations among students.

Data from this study indicate that many male graduates among the total studied had achieved below expectations scholastically in terms of intelligence levels, as only 40 per cent had ranked in the top half of their graduating classes. Assuming equal numbers of both sexes in the graduating classes, it seems reasonable to expect that about half of the male graduates should have ranked in the upper half of their graduating classes.

Among male graduates in the IQ group of 111 or more, the chief differences between those with and without vocational agriculture were that lower percentages of the former had grade-point averages of 4.5 to 5.0 and higher percentages had averages of 3.5 to 4.4 on a scale of 5.0 as the highest.

These findings should challenge teachers of vocational agriculture and other teachers to motivate these students to achieve at levels commensurate with their capacities.

¹Editor's note: Dr. Deyoe submitted this article for publication 6 days before his death on July 15, 1961.

²George P. Deyoe, *Some Comparisons of Male Graduates With and Without Vocational Agriculture in Selected Illinois High Schools*, Division of Agricultural Education, University of Illinois, 1961

Subjects Taken in High School

High school graduates who had taken vocational agriculture usually were graduated with well balanced programs in most academic subjects. Practically all of these graduates had taken at least three years of English and nearly two-thirds had taken four years. More than three-fourths had taken two or more years and approximately one-third three or more years in social studies. Nearly three-fourths had taken two or more years in science. In amounts taken in these three fields, male graduates who had taken vocational agriculture compared quite favorably with male graduates who had taken no vocational agriculture, although generally slightly higher percentages of the latter had taken large amounts.

Graduates who had taken vocational agriculture tended to take less mathematics than other male graduates. Among graduates who had taken vocational agriculture and who had ranked in the upper 20 per cent of their graduating classes, approximately three-fourths had taken at least two years of mathematics other than general mathematics. Among other male graduates in the same IQ range, 96 per cent had taken this amount of mathematics.

With effective guidance, it is possible for students to take well balanced programs in academic subjects and at the same time continue their enrollments in vocational agriculture. Some of the more capable students should be encouraged to take five subjects, at least part of the time.

About four-fifths of the graduates who had taken vocational agriculture had acquired credits in business education, compared to two-thirds of the other male graduates.

Participation in Extraclass Activities

Generally, graduates who had taken vocational agriculture had experiences in slightly more extraclass activities than the other male graduates. These differences between the two groups were greatest among graduates who had ranked in the lower half of their graduating classes. Larger percentages of the graduates who had taken vocational agriculture than of the other male graduates had risen to positions of leadership in extraclass activities. Quite likely, experiences in local chapters of Future Farmers of America account for these differences in favor of students who had taken vocational agriculture.

College Intentions and College Attendance

Considerably smaller percentages of graduates who had taken vocational agriculture than of other male graduates had expressed aspirations to attend college, and much lower percentages of the former had enrolled in colleges the year following graduation. For example, among graduates who had ranked in the upper 20 per cent of their classes, 59 per cent who had taken vocational agriculture and 89 per cent of the other male graduates had indicated intentions to attend college. The year following graduation, 55 per cent of the former group and 80 per cent of the latter had actually enrolled in colleges. Thirty-seven and 62 per cent, respectively, who were in the upper half of their graduating classes had gone to college.

These differences between the two groups are probably a reflection of the traditional tendency for farm youth to attend college less frequently than urban youth. However, *teachers of vocational agriculture and*

guidance counselors should assume responsibility for informing students about occupational opportunities for graduates of colleges of agriculture and encourage larger numbers of the more capable students to attend these and other colleges.

Employment the First Year After Graduation

Among graduates who had taken vocational agriculture, 54 per cent had entered the labor force the first year following graduation, 17 per cent were in military service, 20 per cent had enrolled in colleges or other full-time education, and the activities of the remainder were unknown. The corresponding percentages for the remainder of the male graduates were 33, 15, 42, respectively.

Among the employed graduates about one out of every five who had taken vocational agriculture and one out of three who had taken no vocational agriculture were engaged in unskilled types of work. *This indicates a need for improved guidance and for added opportunities for vocational and technical education in high school and beyond high school.*

Twenty-two per cent of the graduates who had taken one year or more of vocational agriculture and 26 per cent who had taken three or four years of vocational agriculture were engaged in farming and allied occupations the first year after high school. Three-fourths of the actual number so engaged had taken three or four years of vocational agriculture. Only two per cent of the graduates who had taken no vocational agriculture were employed in these occupations. The data in the study show that boys most likely to enter farming occupations had taken three or four years of vocational agriculture and were sons of fathers engaged in farming or other agricultural occupations. □

Future Themes

January—Is the Farm Mechanics Program Keeping Up?

February—Administering the Vo-Ag Program

March—The FFA, Past and Future

April—The Vo-Ag Teacher's Role in Guidance

May—Planning for the Summer

June—Improving the Quality of Farming Programs



A Comparison of Achievement in Science for Students with and Without Vocational Agriculture Training¹

JOHN J. CRAGUN, Instructor of Vocational Agriculture, Ellinwood, Kansas

This master's study was made in order to compare the achievement in science of 196 junior and senior boys from 20 cooperating high schools offering vocational agriculture in the South Central District of the Kansas Vocational Agriculture Association. The science achievement of these boys was tested by means of statistical analysis, and comparisons were made among the following three groups:

Group I—Junior and senior boys with at least two years of vocational agriculture training and no science.

Group II—Junior and senior boys with at least two years of vocational agriculture training and one or more years of science.

Group III—Junior and senior boys with no vocational agriculture training and at least two years of science.

The data were secured by giving the Iowa Test of Educational Development, Test 2, General Background in the Natural Sciences, the Otis Quick-Scoring Mental Ability Test, Form EM, and obtaining grade point averages from official high school transcripts on all students. Scores from these tests and pertinent transcript information were recorded on the master data form. These scores were then used as bases for analysis of the data by means of the statistical technique known as covariance.

Table 1 shows the mean score of each of the three groups as determined from the Iowa Test of Educational Development, the mean intelligence score for each of the three groups as determined by the Otis Quick-Scoring Mental Ability Test, and the mean grade point average of each of the three groups as determined from the official high school transcripts.

An inspection of Table 1 shows that Group III, the nonvocational agriculture group, ranked higher, not only in the Iowa Test of Educational De-

Table 1—Means for the Iowa Test of Educational Development, the Otis Quick-Scoring Mental Ability Test, and grade point average from official high school transcripts of Junior and Senior High School students with varying backgrounds in science from 20 selected high schools in the South Central District of the Kansas Vocational Agriculture Association, 1959-60.

Group	No. of Students	Iowa Test Score	Otis Mental Ability Test	Grade Point Average
Group I—2 Yrs. Vo-Ag, No Science	42	16.4	103.5	2.3
Group II—2 Yrs. Vo-Ag, 1 or More Yrs. Science	97	18.8	105.4	2.5
Group III—No. Vo-Ag, 2 or More Yrs. Science	57	21.7	111.1	2.6
Mean Total	196	19.1	106.7	2.5

velopment, but also in intelligence and grade point averages. Comparisons were made among the three groups and carried out with controls placed on the variables which are known to be related to achievement.

It can be seen that there is a high degree of relationship between mental ability and science achievement. Group I, the vocational agriculture group, received somewhat lower scores in the mental ability test as shown by the Otis Quick-Scoring Mental Ability Test scores and in the scores found in administering the Iowa Test of Educational Development.

It may also be noted that Group II, the vocational agriculture and science group, is slightly below the average mean total scores for the Groups I, II, and III, while the scores of both tests for Group III are slightly above the average mean total scores of the three groups. One exception in this relationship was found in Group II where the average mean total was parallel to the average mean grade point average of the three groups.

It might be expected that some relationship would exist among the above mentioned factors and that achievement in science is not entirely dependent upon science training in academic courses. However, it might

also be expected that a greater range of differences would exist between the scores in science achievement and mental ability of a group that has had no science training and a group that has completed at least two years of science. Therefore, based upon the science achievement test scores received by Groups I and II, it is evident that a rather high degree of factual scientific knowledge has been acquired by the students through vocational agriculture training when they are compared with a group who has had two or more years of instruction in science through academic course work without vocational agriculture training.

Table 2 gives the adjusted mean scores of each of the three groups as determined from the Iowa Test of Educational Development. The statistical technique known as analysis of covariance was used in arriving at the following computations and resulting values.

The average mean scores of the Iowa Test of Educational Development appearing in Table 1 were treated statistically for each group (I, II, and III) and appear as adjusted mean scores as presented in Table 2. Since there is a nonsignificant mean square attributed to differences in sets of slope coefficients, test differences

¹Based on Master's Report, Colorado State University, July, 1961.

among adjusted mean test scores on the Iowa Test of Educational Development can be tested with validity.

Upon testing the differences in these adjusted mean scores it was found that they differ significantly at the one percent level of confidence. To isolate these differences, prediction equations were derived for each of the three student groups. The equations were used to predict the expected Iowa Test of Educational Development score at the same intelligence quotient and grade point average (the grand means of the observed data were used for this). The confidence belts were placed around the predicted values. This operation showed that a difference exists between Group I and the other two groups, but no clear superiority is indicated for Group III over Groups I and II.

If one again inspects Table 2 and applies simple arithmetic to the adjusted Iowa Test of Educational Development scores one finds the range for each group to be as follows: Group I, 16.3 to 18.7; Group II, 18.0 to 20.2; and Group III, 18.8 to 21.6.

It would be possible by using the minimal adjusted mean score for Group I and the maximal adjusted mean score for Group III to find a difference of 5.3 points in the mean adjusted Iowa Test of Educational Development score. If this were done a highly significant difference would exist.

It will also be noted that each group tends to overlay into the next group, which indicates that if one were to take the maximal mean adjusted Iowa Test of Educational Development score for Group I and the minimal mean adjusted Iowa Test of Educational Development score for Group III he would find only 0.1 of one point difference in the mean adjusted Iowa Test of Educational Development score for the two groups. One must realize that we are considering the extreme possibilities in this example and that this small difference could be entirely possible, but not probable.

As Group II and Group III are compared, it may be noted that there is considerable overlap because the minimal adjusted mean Iowa Test of Educational Development score of Group II is only 0.8 of one point lower than the minimal adjusted mean Iowa Test of Educational Development score of Group III. The rest of the range of scores in Group II completely overlaps those scores in Group III. This indicates a close similarity between

Table 2—Adjusted mean scores of Junior and Senior High School students of 1959-60 with varying backgrounds in science from 20 selected high schools in the South Central District of the Kansas Vocational Agriculture Association as determined from the Iowa Test of Educational Development.

Group	No. of Students	Adjusted Iowa Test Score
Group I—2 Yrs. Vo-Ag, No Science	42	17.5 \pm 1.2
Group II—2 Yrs. Vo-Ag, 1 or More Yrs. Science	97	19.0 \pm 1.0
Group III—No Vo-Ag, 2 or More Yrs. Science	57	20.2 \pm 1.4
Total	196	

Group II and Group III in the adjusted mean scores of each group.

In comparing Group I and Group II, it was found that the maximal adjusted mean Iowa Test of Educational Development score of Group I is 0.7 of one point above the minimal adjusted mean Iowa Test of Educational Development score of Group II. It must be realized that there is less similarity in nearness of identical scores for these two groups. However, the fact remains that the groups do overlap in their confidence limits. It also indicates that there is considerable factual scientific knowledge being taught in vocational agriculture and that there is a carry-over in science achievement as measured by the scores on the Iowa Test of Educational Development.

Because of the close similarity in adjusted mean scores between Group II and Group III, it appears logical for high school boys to take at least two years of vocational agriculture and at least one year of science and still compare favorably academically in science achievement as measured by the Iowa Test of Educational Development with students taking two or more years of study in science and no vocational agriculture.

Conclusions

As a result of the analysis and interpretation of data, the following conclusions were drawn.

This operation of covariance showed a significant difference existing between Group I and the other two groups, but no clear superiority was indicated for Group III. It also indicated that considerable factual scientific knowledge is being taught in vocational agriculture and that there is a carry-over as measured by the scores on the Iowa Test of Educational Development.

Implications that could be considered as a result of this study are:

1. Students can feel confident that by following their vocational agriculture course and also taking as many as possible of the supporting academic courses offered by their high school, they will be able to compete academically with those students not having vocational agriculture.

2. Guidance personnel and/or administrators in high schools, while counseling prospective high school students, should find the results of this study useful. This study supports other research indicating that scientific knowledge is being taught in vocational agriculture as measured by the scores of the Iowa Test of Educational Development as used in this study. □

The Cover Picture

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total of \$350.00 and also a job. Knipp worked for a telephone company this summer and has a part time job to help pay the rest of his expenses.

Knipp is interested in food processing and marketing, and is planning to seek employment with a food chain store upon graduation. Silvey will probably major in agricultural economics and farm management. Brauer will probably major in agricultural education. Ashley, the oldest of a family of ten children living on a 120 acre Grade B dairy farm, will major in animal husbandry with most of his work in meats. Spencer hopes to major in agricultural economics and be employed in the farm loan department of an insurance company or with Production Credit Association.

Other information about the Tipton Vocational Agriculture Department can be found in the article in this issue by Mr. Roscoe R. Gibson. □

What Happens to Farm Boys Who Have Finished Vocational Agriculture?

ROSCOE R. GIBSON, Vo-Ag Instructor, Tipton, Missouri

It is not uncommon today to hear a farmer say, "There is no chance for my boy in agriculture." He is referring to the high cost of becoming established in farming, and in some ways he is quite correct in his statement.

It is estimated that the average farmer in the Tipton, Missouri, area has upward of \$50,000 invested in his home and farm. This is a huge sum of money even when compared to the business establishments in the community. However, not many, if any, of the businessmen in the community started their businesses immediately after graduating from high school.

It is a fact that farms are becoming larger and that we need fewer farmers than we did a few years ago, but it is also a fact that farming is becoming a very technical business. Modern farmers must be better trained and additional training must be made available to them for years to come. This is the reason that the vocational agriculture departments throughout the United States have a continuing program of adult education.

Many people believe that a student enrolled in vocational agriculture should become a farmer. *This is not necessarily true.* It is true that they do receive the scientific and practical instruction that should prepare them for successful farm operation, but it also gives them a good background for many occupations related to agriculture.

About 11 per cent of the population are actively engaged in farming and it is estimated that an additional 33 per cent of our population are employed in positions directly related to agriculture, occupations such as food processing, meat, grain, and other industries. In other words, for each man on the farm, three are required to handle the food he raises and to manufacture the products that he buys.

Just recently I was asked what happened to my students. I had an idea, but I couldn't be sure, so I decided to find out for myself. Frankly, I was pleasantly surprised.

I made a record of each student who had graduated from Tipton High School and who had been enrolled in vocational agriculture for at least three years. Since vocational agriculture was not started until 1946, the students graduating in 1947 had only one year of vocational agriculture, and the 1948 graduates had only two years. My records for 1949 are incomplete, and so only three graduates of that class are in the survey.

All students were classified into five different categories. These categories with the percentages of students in each are:

1. Entered college 33.85%
2. Entered farming 18.46%
3. Entered industry related to farming 20.77%
4. Employed in positions not related to farming. 16.92%
5. Serving with the U. S. Armed Forces 10.00%

The study covers a 15 year period. During this period 130 boys graduated from high school who had 3 or more years of vocational agriculture with the exception of the first two graduating classes.

MORE GRADUATES ATTENDED COLLEGE.

- 44 of the 130 boys attended college
- 16 have completed college
- 18 are now students in college
- 10 have quit college before graduating.

THE KIND OF COLLEGES ATTENDED.

- 32 in College of Agriculture, University of Missouri
- 6 in State Teachers Colleges
- 2 in Engineering College, University of Missouri
- 1 in College of Education, University of Missouri
- 1 in School of Arts and Sciences, University of Missouri
- 1 in U. S. Naval Academy
- 1 in Private Junior College, then completed a mechanical trade school.

TWENTY PER CENT OF THOSE ENTERING COLLEGE DROPPED OUT.

- 7 from Agricultural College
- 1 from Arts and Science
- 1 from Teachers College
- 1 from private Junior College (since has completed mechanical trade school.)

WHAT HAPPENED TO THE COLLEGE DROP OUTS?

- 2 own and operate farms
- 1 in dairy manufacturing
- 1 working on farm
- 1 farming in partnership
- 1 guided missile expert
- 1 meat inspector
- 1 working in industry
- 1 in office of greeting card company.

WHAT HAPPENED TO THE COLLEGE GRADUATES?

- 2 vocational agriculture instructors
- 2 in farm loans (P.C.A. and Federal Land Bank)
- 5 teachers of subjects other than agriculture
- 1 radio farm director
- 1 milk plant assistant manager
- 1 feed company representative
- 1 chemical engineer
- 1 U. S. Naval pilot
- 1 deceased

TWENTY FOUR BOYS ENTERED FARMING FROM HIGH SCHOOL.

- 8 owners and operators
- 9 renters
- 3 in partnership with others
- 4 farm laborers and renting some land.

TWENTY SEVEN ENTERED RELATED AGRICULTURE INDUSTRY FROM HIGH SCHOOL.

- 5 mechanic-farm machinery and others
- 4 poultry processors
- 2 welding
- 2 manager and assistant manager of M.F.A.
- 2 owner and manager of "soft" ice cream store
- 2 Rural Electric administrator
- 2 electrical workers
- 1 meat packer
- 1 petroleum distributor to farmers
- 1 fruit distributor

- 1 feed sales manager
- 1 poultry trucker
- 1 banker
- 1 Fram steel bin construction
- 1 bulldozer operator.

THIRTEEN STUDENTS ARE IN ARMED SERVICES.

- 2 served more than four years
- 11 served less than four years.

TWENTY TWO WERE EMPLOYED WITH DUTIES NOT RELATED TO VOCATIONAL AGRICULTURE TRAINING.

- 16 in varied industry
- 2 carpenters
- 2 Army engineers
- 1 assistant manager of small loan company
- 1 not classified.

Should parents discourage their sons from studying agriculture because there is little chance to farm? The chances are less today because of the difficulty of finding a farm

or the finances to run the farm. I think *the answer is a big NO*. Remember that almost 34 per cent went to college, 21 per cent took jobs in related industry, and 19 per cent actually farm. This means that a boy has a 74 per cent chance of finding wholesome employment in agriculture or related industry. In what other field may the odds be so good? Agriculture was our first industry and without a doubt it will be the last. Can you imagine a time in the future that food and fiber will not be needed? Agriculture is still our greatest industry. Many of our leaders, local, state, and national, are farm born and trained. The leaders of most any community or organization are farm people. Just check the people that you consider leaders and see how many of them were farm reared and trained.

On a recent visit to the University of Missouri, an official of that institu-

tion told me that any deserving student could go to that school regardless of finances. They have loan funds at little or no interest that are available to deserving students. They have jobs whereby a student may pay part or even all his expenses. They may work and graduate in 4 to 5 or even 6 years depending on how much they work. So now there is little excuse for anyone saying, "I wish I had the chance to go to college." He does have the chance. At Tipton High School 33.85 per cent of the boys proved this. Thirty five of the Tipton boys worked part or all of their way through college. One I remember started with \$50 of his own money. Some of that might have been borrowed. He finished college.

Should you encourage your son to find a career in agriculture if he likes the field? The answer by all means must be YES, because 74 per cent of them will find employment in their chosen field. □

A Study of How High School Senior Boys Who Have Studied Vocational Agriculture in High School Rate in Their Understanding of Scientific Concepts

E. M. WEBB, Supervisor, Washington

Purpose of Study

This study was conducted in the spring of 1959 by the Washington State Board for Vocational Education and Washington State University, School of Education, cooperating. The study is an attempt to find out how the various high school curricula influence the understandings of high school senior boys with regard to several fields of scientific knowledge.

For those who must live, work, and play in the world today, an ever increasing emphasis on understanding of things about us is evident. It then becomes important to society that we provide our young people with understandings which will make for a productive, satisfying and informative life. In order to accomplish this,

a continual evaluation and re-evaluation of our school curriculum is eminent. This study is an attempt to evaluate a segment of our school curriculum as it pertains to subjects offered in high schools having courses in Vocational Agriculture. The specific point in question is, "How well are boys who study Vocational Agriculture in high school being equipped to understand the implications of scientific concepts.

Plan of Study

In order to make such an evaluation, it becomes necessary that we start with students of similar abilities and measure their progress in scientific understandings as they pursue different course offerings during their high school careers. To accomplish this,

the supervisory staff of the State Board for Vocational Education, Division Agricultural Education; and certain members of the School of Education at Washington State University, were consulted and the following procedure decided upon.

STEP I

The 141 high schools in the state of Washington that teach Vocational Agriculture were divided into four groups, according to enrollment. This procedure was followed to insure representation of students from all sizes of schools. The schools were arranged alphabetically according to size. Then from each group, every third school was drawn. This gave a sample of 47 schools. The superintendent of each school drawn was



contacted by letter. This letter explained to him the study and asked his cooperation by permitting all senior boys in his school to be tested. Thirty-eight school superintendents replied favorably to the request, and nine replied that, for one reason or another, they did not wish to have their school take part in the study.

A second drawing was made taking the next school in order in each group of schools. Eight school superintendents replied favorably to this request and one unfavorably. The study was launched with 46 schools stating a willingness to cooperate. Due to illness and conflicting events, three of these 46 schools found it impossible to arrange a time convenient for giving the tests, and two schools were not included because we did not receive their transcripts in time. The complete results of 41 schools, including 1310 students, then make up the sample to be tabulated and studied.

STEP II

Three types of measuring or testing devices were sought. First, a measuring device which would determine level of general knowledge or ability. This measure was desired so

that groups of students with similar levels of ability could be compared as to knowledge in various areas of learning. Second, a measuring device which would measure knowledge in the area of science. Third, some method of quantitative analysis; that is to say courses pursued through high school.

For the general ability measuring device, the Cooperative School and College Ability Test was selected. This test is widely used by various colleges and universities throughout the nation to determine level of ability

for college entrance. This test is divided into two areas, verbal and quantitative.

For testing the science area, the Read General Science Test was selected. This test has been used widely and has an excellent reputation for reliability.

For determining courses taken or subject matter studied, it was decided to obtain transcripts from the high school of all students taking the tests. From a study of these transcripts, the following six groupings of students were made:

<i>Subject Pattern:</i>		<i>Referred to in study as:</i>
Group I	2 or more years of Vo-Ag 2 or more years of Science	High Vocational Agriculture High Science group
II	2 or more years of Vo-Ag Less than 2 years of Science	High Vocational Agriculture Low Science group
III	Less than 2 years of Vo-Ag 2 or more years of Science	Low Vocational Agriculture High Science group
IV	Less than 2 years of Vo-Ag Less than 2 years of Science	Low Vocational Agriculture Low Science group
V	No Vo-Ag 2 or more years of Science	No Vocational Agriculture High Science group
VI	No Vo-Ag Less than 2 years of Science	No Vocational Agriculture Low Science group

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The Importance of Recruitment for Colleges of Agriculture

C. E. DEAN, Teacher Education, and HOWARD F. ROBINSON, Chmn.,
Agricultural Economics Dept., The A & T College of North Carolina, Greensboro

The decade of the 1960's offers a challenge to higher education. The sharp increase in birth rates in the 1940's gives support to the probability that there will be many more people of college age in the 1960's than in the 1950's. Population in the United States is expected to reach two-hundred and twenty million by 1975. The domestic agricultural market in 1975 is expected to have thirty million more consumers than was expected a few years ago. In short, our economy will have more people to feed, educate and employ. This tremendous job will have to be done with a dwindling farm population and an increasing nonfarm and urban population.

Our agricultural plant will need more technically trained personnel to meet this challenge. Today, our agricultural colleges are producing only fifty per cent of the number of technically trained persons that will be needed to fill these jobs. Agricultural colleges will be called upon to play their parts in producing more technically trained persons in specialized areas of agriculture. Our recruiting program will have to be designed to attract young men and women who are capable of filling these positions.

The most recent statistics show that 450,000 boys are studying agriculture, and that a reserve bread basket of stored food is being kept

which is costing the society a million dollars a day. Many educators, therefore, are recommending that many more students should be enrolled in industrial education than vocational agriculture. This is a good time for the agricultural teachers at the secondary and college levels to keep a focal point on the recruitment.

We could wake up and find that we are short on food and trained persons to produce enough food to meet our needs, especially when we recognize the fact that we will be feeding two-hundred and twenty million people on the home fronts in 1975. The world's population is expected to reach more than six billion and two-hundred million at an early

date which could also mean that we could face starvation if our productive know-how is not kept at a high stage of proficiency.

Speaking of recruitment in agriculture, the following statistics show the picture in the secondary schools and the college providing agricultural training over the past ten years in North Carolina:

Enrollment of Non-White Students

Vo-ag students	1950	1951	1952	1953	1954
Secondary School	6,142	6,708	6,538	7,500	8,319
	1955	1956	1957	1958	1959
	8,927	8,381	8,999	9,590	10,164
TOTAL ENROLLMENT	81,268				

Ag-ed students	1950	1951	1952	1953	1954
College	316	229	246	179	287
	1955	1956	1957	1958	1959
	322	214	359	312	332
TOTAL ENROLLMENT	2,896				

May we suggest a few methods of recruiting students which may prove to be profitable to both the teacher of vocational agriculture and the in-

structor in the Agricultural College:

1. The parents and sons may be encouraged to spend two days and one night at the college some suitable time during the year so that they can become informed about the programs that are available and the facilities and equipment for conducting such training programs. Several colleges are using this plan for recruitment.
2. The High School Day for seniors

has proved quite helpful. One institution has modified this to have the senior vocational agricultural students who are interested in agriculture and/or science to spend a day at the college to get a new focal point on new opportunities in the field or fields.

3. A cooperative counseling system in which the local agricultural teacher and the college instructor work together beginning at the junior year in the secondary school. This procedure should prevent many of the outstanding students from getting lost during the process. Definite forms and conferences are used in carrying out this project.
4. The senior students of the college who go out for directed teaching and many field trips can and frequently do encourage outstanding students to attend college and consider the agricultural field.
5. The members of the professional and technical staffs are frequently called out to the secondary

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The Nation's School Drop-Out Problem

STERLING M. McMURRIN, U. S. Commissioner of Education, Washington, D. C.

Two and one-half million of the 10,800,000 students to be enrolled in grades 9 through 12 of the Nation's public and nonpublic schools this fall will drop out before graduation.

Recent surveys indicate that sizeable percentages of school leavers have average intelligence. Significant numbers have demonstrated ability levels suited to the intellectual disciplines of college.

I urge the cooperation of all citizens in a Nation-wide effort to encourage young people to complete their schooling.

Too many of us fail to see education as the foundation upon which our values rest. Too often we regard schooling more for the prestige it gives us than as a source of intellectual and spiritual strength. In the enjoyment of affluence which an educated society has given us we tend to forget that the affluence derives from intelli-

gent achievement and is not self-generating.

It is time we took a good look not alone at our schools but at our whole public attitude. To raise the sights of learning to a level which draws out the best in all of our people we must face up to the economic and social factors which crush human initiative and creativity.

The majority of drop-outs come from backgrounds of semiliteracy and poverty, sometimes crime, often neglect. Although the early grades offer the underprivileged child some measure of security, by the time he reaches high school the sociological pressures from outside are dominant. Three out of five drop-outs have not even had the benefits of guidance and counseling to help them adjust sights to potentials.

But even among the sizeable number of drop-outs from more privileged

families there is a background of parental indifference to the worth of education.

We commonly say that education is opportunity. Education is opportunity in varying measure, the variables being not only the native limitations of individual ability but also the social and economic roadblocks to individual pursuit of excellence.

All too often we undermine our country's greatest resource, its brainpower, through indifference, complacency, and improvidence.

We talk of mobilizing our strength, but the only kind of mobilization sure to preserve our traditional institutions of government, and thereby our accustomed way of life, is mobilization of the minds of all our people.

All of us, working together, must exert to the utmost our ingenuity and creativity to accomplish the great task before us. □

Recruitment . . .

(Continued from page 133)

schools for various programs; this will provide an opportunity to work on the recruitment.

6. The District Supervisors and District Agent, two top field workers in vocational agriculture and extension service, who are frequently members of the college staff, can help on the recruitment if plans at the college are properly developed.
7. The Teacher-Training Department and other departments of the college might mail useful materials to the agricultural teacher which will be useful in the training program of the vocational agricultural student. The measures will help in bringing about acquaintances and improved training program at the secondary and college levels.
8. The students of the secondary school and the college usually attend the Annual State Fair and this will provide a good opportunity for the college student to do some recruitment.
9. The college conducts many different forms of athletic activities. The secondary students can be informed about the special events through the local agricultural teacher which will provide another opportunity for desirable contacts and observations to be made.
10. The agricultural teacher and the U. S. Extension agent can keep a constant search for outstanding students and when these persons are found follow them with a real guidance program.
11. The School of Agriculture should send Agricultural News Sheets and other records of the graduates and their new employment

program to the secondary school. Action pictures of a few of these men who are known by the secondary school group will be quite helpful in building interest on the part of the high school to follow in his footsteps.

12. The FFA and NFA in secondary schools conduct many events during the year such as Live-stock and Crop Judging, Land Judging and Public Speaking. In many of these activities a senior agricultural student can assist the local teacher while he learns new methods and procedures thus providing an opportunity for recruitment.
13. The secondary school might well consider the practice of providing a well organized program of guidance and counseling espe-

of your experiences if it will help; (c) in some cases a few down-to-earth questions will help the student to properly evaluate his plans; and (d) when he has a good plan that seems to be well thought out, which will enable the student to reach his future goal, give him a pat on the back, so to speak, and let him know he has good goals and plans. Do not try to give advice about fields and/or programs that you are not prepared to give help, but direct the student to proper persons.

14. The vocational agriculture teacher and college instructor might keep an area of the bulletin board available for present and future occupations. A suggested form might be helpful:

The Occupational Chart

High School	Occupations Open	Training Required	Experience Required	Beginning Salary

The Occupational Chart

College	Occupations Open	Training Required	Experience Required	Beginning Salary

cially through the junior and senior years if not through the four years. One authority suggested the following steps: (a) provide time to hear the student's story. In many cases they are not able to get the needed ear at home; (b) give him the benefit

15. Finally, both the secondary agricultural workers and the college workers might do well to step the curriculum up inasmuch as we are moving into a rapid changing period of our agricultural economy, and our products will face many complex problems and situations. □

To What Extent Do Former Vocational Agriculture Students Succeed in College?

B. C. BASS, Teacher Education, Virginia Polytechnic Institute

A valuable service to agricultural education workers was performed during 1960 by Dr. Frederick K. T. Tom, of Cornell University, when he reviewed all (13) of the editions of *Summaries of Studies in Agricultural*

Education then available to determine what research had revealed relative to "College Success of Former Students of Vocational Agriculture."¹ He learned that of the 93 major research findings reported, 53.8 per cent

showed the vocational group did better than the nonvocational group,

¹Tom, Frederick K. T., "College Success of Former Students of Vocational Agriculture." Staff study, 1960. Cornell University. 4 p. Rural Education Department, Cornell University, Ithaca, N. Y.

36.6 per cent showed just as well, and only 9.6 per cent showed that the vocational group did poorer than the nonvocational group.

A group of vocational agriculture teachers composing the Research Committee for Vocational Agriculture in Virginia recommended, during the summer of 1960, that a study be made to determine the extent to which vocational agriculture students in this State succeed in college. Such a study was launched late in 1960.² It involved investigating some of the academic achievements made at Virginia Polytechnic Institute by each individual in a group of students who had studied vocational agriculture for two or more years while in high school and by each individual in a group of students who were also graduated from the same 80 rural high schools in Virginia but who had not enrolled in vocational agriculture while in high school. A total of 222 individuals were in the vocational group and 168 were in the nonvocational group.

As may be seen in Table I, a significantly smaller proportion (at the 5 per cent level of significance) of the individuals in the vocational group left college during or at the end of the first year following enrollment than did the individuals in the nonvocational group. Likewise, a significantly larger proportion (at the 1 per cent level of significance) of the students who studied vocational agriculture while in high school remained in college for four academic years after enrolling than did the students who did not enroll in this subject in high school. While these findings favor the vocational group, it should be remembered that some individuals left college for reasons beyond their control, such as being drafted to serve in the armed forces. However, these findings indicate that the individuals who studied vocational agriculture while in high school were as well prepared to do college work as those who did not study this subject in high school and perhaps had developed a greater determination to do college work successfully.

The mean of the overall quality credit (point) average earned by the

²Bass, B. C., "A Study to Determine Some of the Academic Achievements of Students at Virginia Polytechnic Institute Who Studied Vocational Agriculture While in High School." Nonthesis study, 1961. Virginia Polytechnic Institute, 8 p. Department of Agricultural Education, Virginia Polytechnic Institute, Blacksburg.

TABLE I

Summary of Some of the Academic Achievements Made at Virginia Polytechnic Institute by a Group of Students Who Studied Vocational Agriculture While in High School and a Group Who Did Not Enroll in This Vocational Subject While in High School

	Vocational Group	Non-vocational Group
Proportion of the students who dropped out of college during or at the end of the first year after enrollment.....	11.76%**	17.16%**
Proportion of the students who remained in college for four years following enrollment	75.67%*	65.08%*
Mean overall quality credit average earned by the students..	1.41	1.20
<i>English</i>		
Proportion of the students who failed first quarter freshman English at least once.....	23.42%	18.34%
Proportion of the students who failed second quarter freshman English at least once.....	15.31%	12.17%
Proportion of the students who failed third quarter freshman English at least once.....	13.02%**	6.29%**
Proportion of the students who failed first quarter sophomore English at least once.....	14.77%**	7.51%**
Proportion of the students who failed second quarter sophomore English at least once.....	8.28%	3.14%
Proportion of the students who failed third quarter sophomore English at least once.....	4.79%	3.92%
<i>Mathematics</i>		
Proportion of the students who failed first quarter college algebra at least once.....	15.38%	16.96%
Proportion of the students who failed second quarter college algebra at least once.....	11.96%	14.74%
Proportion of the students who failed third quarter college mathematics	10.58%	12.23%
<i>Chemistry</i>		
Proportion of the students who failed first quarter freshman college chemistry at least once.....	16.49%	12.60%
Proportion of the students who failed second quarter freshman college chemistry at least once.....	14.52%	13.91%
Proportion of the students who failed third quarter freshman college chemistry at least once.....	6.95%	6.66%
<i>Biology</i>		
Proportion of the students who failed first quarter freshman college biology at least once.....	11.87%	16.54%
Proportion of the students who failed second quarter freshman college biology at least once.....	12.66%	8.16%
Proportion of the students who failed third quarter freshman college biology at least once.....	8.62%	6.45%

*Significant at the 1 per cent level.

**Significant at the 5 per cent level.

students in the two groups during their college careers slightly favored the vocational group, but the difference between the achievements of the two groups with respect to this was not significant according to the t test at the 5 per cent level of significance.

According to the results of the chi square test (at the 5 per cent level of significance) a significantly larger proportion of the vocational group failed two of the six required English courses than did the nonvocational group. There were no significant dif-

ferences between the achievements of the students in the two groups with respect to the proportion who successfully passed four of the six required English courses and all courses in mathematics, chemistry, and biology.

Summary

Of the 18 findings made, 2 (proportion who remained in college during the first year and proportion who remained in college for four years fol-

(Continued on page 137)



Scholastic Failures— An Indictment of College Teaching?

E. V. WALTON, Former Head, Agricultural Education Department,
Texas A. and M. College

Each year thousands of students graduate from high schools and make application for admission to institutions of higher learning. These students have fulfilled the course requirements for college admission and hold diplomas of graduation from their high schools. Most of these who apply for admission to institutions of higher knowledge are in the upper 50 per cent of their graduating class scholastically. The cutting process begins and finally only those are chosen who are near or in the top 25 per cent.

Too many of these highly select students fail to graduate from college! Scholastic failure, the scythe of the indifferent and mediocre college teacher, decimates the ranks. The drop-outs, with the stigmata of failure upon them, slowly swell the total of "not quite good enoughs" who find places somewhere in American democratic and economic structure. The impact of this may be considered in terms of lost manpower or brainpower, in addition to the psychological and social effects. In simple terms of economics a college graduate earns from 80 to 100 thousands dollars more in his productive lifetime than a noncollege graduate. The loss of tax revenue alone is considerable aside from lost purchasing power. We know that purchasing power turns the wheels of American industry and business.

The loss of potential brainpower, tax ability and purchasing power may pose a staggering indictment of college teaching if these people are salvable in college terms without impairing what we call quality education.

The simple truth of the matter is that colleges and universities *do not* have mediocre material to work with. Business and industry would be delighted if they could fill their training programs with brainpower from the top 25 per cent of the nation's output.

Colleges and universities have an opportunity to develop good material—the best available. Let us grant that a certain but rather small per-

centage of these college admittees would drop out or fail scholastically for reasons having nothing to do with the quality of college teaching. The remainder of those who fail do so because institutions of higher learning remain absolutely unique among all American institutions in employing and retaining personnel who need not have any skill or training for their jobs beyond knowledge of the subject matter! The job of the college professor is not to apply that knowledge, but to impart it to others in such a manner that the student will be motivated, inspired, disciplined and improved. No abilities in *imparting* are required. No training in *imparting* is required. Little or no stigma is attached to failure to properly perform the job for which the professor is employed. A specialist working on an assembly line constructing complicated machines essential to the nation's well-being and security would be fired if 80 per cent of his output were failures, no matter how well built the remainder was. A physician with a 50 per cent mortality rate would soon find himself without patients and would be banned from practice in reputable hospitals. A lawyer who lost far more cases than he won would have a paucity of clients. A salesman who failed to close sales with a majority of his customers who wanted or could be made to want his product would soon find himself removed from the force. The pattern is clear.

Not so in college teaching! Too prevalent is the attitude and philosophy, "I'm an excellent professor. Only five out of fifty passed my course last semester. That proves I am good. I am hard. Therefore, I must be doing an excellent job." This type of professor, far too common in institutions of higher learning, seldom pauses to ask himself certain searching questions. "What caused me to have only ten or twenty per cent efficiency?" "If sixty per cent of my students fail, am I only fifty per cent effective?" "My job is to motivate, challenge, inspire, impart and aid *all* of my

students. To what extent am I successful?" If this same professor has the narrow view of his responsibility that is, merely to impart the body of knowledge, he could still well afford to measure his effectiveness by how well he succeeded—not how well he failed!

No such inconsistency exists anywhere else in the American structure! The criteria of success is failure? The American professor cannot fall back on the excuse that his students were dullards or poorly prepared. Those students are rarely admitted. Equally weak is the excuse. . . . "The students did not try. They were not willing to work!" It is the job of the good teacher to make students want to try; to inspire them to work; to make the unknown known, and to clarify the obscure. Seldom does the failing professor admit, "I do not know how to teach. I do not accept the responsibility of teaching well—the major part of the process is up to the learner." He does not admit these things because his criteria of teaching performance is fallacious or hazy. He continues to teach in his deadly monotone, or rapid fire manner, interjecting a considerable amount of what he fondly considers to be entertaining evidence of his vastly superior knowledge or idiocrasies. He utterly fails to consider that where there is little or no learning, there has been little or no teaching.

Frequently, the poor college teacher lards his lectures with such statements as, "Look around, ninety per cent of you won't be here long!" It never occurs to him that such a statement engenders about as much confidence in his teaching ability as a combat platoon leader would if he looked at his troops and said, "I am going to lead you into combat and ninety per cent of you will not survive!"

College professors need to re-examine their philosophies and aims. They need to understand what they are paid to do. If their job is to teach, not merely to know, then they need

to master the skills of teaching. Above all, they should develop a sense of responsibility for their performance and it should be a weighty and conscience awakening realization. The term "professor" should be critically examined. Do professors profess merely to know, or should they profess to know *and* teach?

Until we learn that failure is not a criteria of success in anything, and more particularly in teaching, we shall continue to scratch the green rind and twist the sapling that Amiel, the

Swiss Philosopher spoke of when he said, "Scratch the green rind of a sapling, or wantonly twist it in the soil, and a scarred or crooked oak will tell of the act for centuries to come. So it is with the teachings of youth, which make impressions on the mind and heart that are to last forever."

"The highest function of the teacher consists not so much in imparting knowledge as in stimulating the pupil in its love and pursuit." □

Vo-Ag Students . . .

(Continued from page 135)

lowing enrollment) indicated the vocational group did better in college than the nonvocational group, 14 indicated the vocational group did just as well, and 2 (proportion who failed third quarter freshman English and first quarter sophomore English) indicated the vocational group did not do as well in college as the nonvocational group. □

A "Punt, Pass, and Pray" Philosophy for Teaching Moral and Spiritual Values in Our Vocational Agriculture Departments

HOWARD R. BRADLEY, Teacher Educator, Kansas State University, Manhattan



The story has been told about a football team that had taken a terrific beating up to the third quarter. The coach, in looking up and down the bench, observed that he had only one player to send in for the injured quarterback. The coach pointed his finger at the young man. The player jumped up off the bench, nervously placed the helmet on his head and asked, "Coach, what play shall I call?" The coach glanced at the scoreboard and sensing the futility of the situation answered, "Punt, pass and pray."

In many respects moral and spiritual values as they are being taught in our vocational agriculture departments are somewhat in a similar position in that they are punting, passing and praying that the desired results will be obtained.

Moral and spiritual values as taught in our vocational agriculture departments are not to be confused with religious education. There is a distinct and inseparable relationship, but in the schools there is a common respect for all religious views without the indoctrination of any one creed. This is in harmony with the original separation of church and state as well as the most recent legal decisions concerning the teaching of religion in the schools.

Many definitions for moral and spiritual values are available. Some have treated them together while others have separated the two. In many ways I find these definitions are like a big tent in a high wind, they cover the

subject, but are hard to pin down.

A moral, says Webster, is of or pertaining to that with which morals deal, as questions of right and wrong. Could an act be right in one social group while that same act in another group would be wrong?

Moral in the ethical sense suggests a science dealing with the ideal character. It is in the ethical sense that I prefer to think of a moral value. This science has to do with developing a concept for each of the values to be taught.

There are those who believe or would have you believe that to be moral is to be a "goody-goody." Mark Twain has been credited with saying, "Be good and you will be lonesome." Others write that to be moral is to be virtuous and that virtue is its own reward.

Scientists are often chided about their ability to send messages to the moon, but have no one to receive the messages. Educators have the content for moral and spiritual messages, but are they able to send the messages in such a way that reception is adequate? Are vocational agriculture teachers talking in terms that their students understand?

I also refer to those enrolled in Young and Adult Farmer classes. These classes may well represent a group having a very real need for moral and spiritual values that cannot or have not been supplied by any other agency. If vocational agriculture

is to keep step with social changes, it cannot evade or ignore its increasing responsibility in this direction.

The vocational agriculture teachers must continue to share the responsibility for making better people in our world. There is no one approach to cultivating the best in the lives of rural youth and out-of-school adults. The home and community must also share the responsibility for teaching "how" moral and spiritual values shall be taught. It is my opinion that teaching can be more direct by the very language that is used. The words "honestly," "loyalty," "truth," etc., should be used often. The vocational agriculture classroom atmosphere should be one in which anyone would feel free to speak of his views without fear of being adversely criticized and/or ridiculed.

Teachers will also need to adjust the language they use to the experience and ability of the learner. It is not enough to understand what it means to be honest; there must also be opportunities for the student to practice being honest. By providing social situations for personal application of moral teachings, the vocational agriculture teacher would be teaching directly and helping students to think in certain acceptable channels.

The examples set in the classroom as well as in everyday life by vocational agriculture teachers must reflect the ideal in character if they expect to

(Continued on page 143)

A Picture of Success in College



What happens to graduates of vocational agriculture who go to agricultural college? The officers of the collegiate chapter of Future Farmers at Kansas State University present a

cross section of the answer to this question. Pictured above, front row, left to right are:

Gary Doggett, Secretary, Sophomore in Business Administration, past

officer of St. Francis, Kansas, chapter.

Gary Eilrich, Reporter, Junior in Agricultural Education, State Farmer, past officer of the Ellsworth, Kansas, chapter.

Steve Robb, Treasurer, Sophomore in Agricultural Economics, past state president, Past District Star Farmer, State Farmer, State Public Speaking Winner, and officer of the Lawrence, Kansas, chapter.

Gary Harmon, Vice-President, Junior in General Agriculture, Past State Sentinel, State Farmer, District Star Farmer, Senior of the State Farm Electrification Award and past officer of the Ellsworth, Kansas, chapter.

Back row, left to right are:

Professor Paul Stevenson, Advisor to the Collegiate Chapter and Teacher Trainer in Agricultural Education.

Gary Higby, Sentinel, Junior in Technical Agronomy, Past State Farmer and officer of the Smith Center, Kansas, chapter.

Jerry Gardner, President, Junior in Agricultural Education, Past State President, State Farmer, and officer of the Clay Center, Kansas, chapter.

Dr. R. J. Agan, Assistant Advisor, Teacher Trainer in Agricultural Education. □

How High School Senior Boys Rate . . .

(Continued from page 132)

The Data and Their Treatment

The procedure in developing a chart of comparison for the above groups, see Table I, was as follows: The Cooperative School and College Ability Test is sometimes referred to as SCAT. The total score range made by students in this test was divided into four percentile bands, and the results were placed on the vertical axis of the chart. Upper percentile band was from 100 to 75 and included 327 students. The upper middle percentile band was from 74 to 50 and included 328 students. The lower middle percentile band was from 49 to 25 and included 327 students. The lower percentile band was from 24 to 0 and included 328 students. The total students included in the study numbered 1310. On the horizontal axis the student population is distributed in accordance with the particular pattern of subject matter studied.

The grid chart thus formed shows in each grid the mean score attained on the Read General Science Test by the percentile group indicated by the position of the grid cell on the chart. For example, in the grid chart shown, the corner cell in the upper left-hand corner shows that 35 out of the 1310 students had taken two or more years of agriculture and two or more years of science (subject-matter pattern) and had made a score sufficiently high in the SCAT test to place them in the upper percentile band. This group attained a mean score of 127.86 on the Read General Science Test with a standard deviation of 7.18. In comparing this information with groups in other cells of the grid, we find this group to stand at the top in ability and also at the top as far as mean score on the Read General Science Test is concerned. The size of the group, while not large, is not the smallest group on the grid. Thus, one may compare the various groups on the grid chart.

Summarization of Results

In a study of Table I, it becomes

evident that scientific knowledge retained by students tested in this study varied more because of the "level of student ability" than it did as a result of "subject-matter pattern." In fact, the greatest mean point difference between top-ability students and low-ability students for any given subject-matter pattern was from a mean point of 125.38 for the top-ability group to 102.2 for the low-ability group or a mean point difference of 23.18. This variation was found in Group V, "no agriculture but two years or more of science." The greatest mean point difference between "subject-matter pattern" groups of similar ability was found in the upper percentile Group I with a mean point of 127.86 and Group II with a mean point of 118 showing a mean point difference of 9.86. This difference is less than half the mean point difference existing when comparing the level of student ability. *This points up the fact that student ability is of more importance in determining student retention of scientific concepts than is the subject-matter pattern taken in high school.*

TABLE I
Groups According to Classification
Used in Study

M = Mean

SD = Standard deviation

N = Number of individuals

The Pearson's product moment coefficient of correlation between SCAT and Reed General Science Test equals .716.

Perce- ntile		Group I High Agri. High Sci.	Group II High Agri. Low Sci.	Group III Low Agri. High Sci.	Group IV Low Agri. Low Sci.	Group V No Agri. High Sci.	Group VI No Agri. Low Sci.	Number in Percentile
75-100	M SD N	127.86 7.18 35	118 14.3 13	125.35 8.9 26	120.6 5.66 5	125.38 11.92 223	119.52 7.68 25	327
50-74	M SD N	116.87 6.57 54	115.38 7.68 29	115.44 8.81 25	116.21 6.99 14	116.64 12.97 137	111.54 9.17 69	328
25-49	M SD N	114.06 9.35 46	109.98 7.42 58	111.45 8.44 20	105 5.84 13	111.44 8.74 110	104.68 9.26 80	327
0-24	M SD N	106.38 17.57 39	96.95 11.37 93	105.18 9.08 11	98 10.9 11	102.2 8.87 70	97.52 10.21 104	328
	N	174	193	82	43	540	278	1310

Upon reviewing the levels of significance, one finds that students with a combination of two or more years of agriculture plus two or more years of science had the greatest retention and understanding of scientific concepts on all student-ability levels of any subject-matter pattern studied. This difference was significant at all student-ability levels when comparing students in Group I, high agriculture plus high science, with students in Group VI, no agriculture plus a minimum of one year science. The fact that Group I, high agriculture plus high science, stood at the top on mean score for knowledge of scientific concepts at all student-ability levels indicates that agriculture, which after all is a practical science, and a basic science subject such as chemistry, biology, botany, and physics make the best combination for retention and understanding of scientific concepts of any subject-matter pattern investigated by this study. Agriculture then should be considered highly favored as a companion subject with

basic science subjects in high school if one wishes to achieve high retention and understanding of basic science concepts.

Of the 1310 high school seniors included in this study, 174 students, or 13.28% of the group, included in their high school subject-matter pattern two or more years of Vocational Agriculture plus two or more years of basic science courses. This shows that such a pattern of subjects can be taken by high school students if there is a high school administration sympathetic to arranging for and counseling students into such a pattern of studies.

Conclusions

In summing up the findings of this study, it should be kept in mind that only Vocational Agriculture and basic science courses were compared. The investigation was limited to 1310 senior boys in the 41 schools cooperating in the study. A study of the data indicates:

1. Student ability is of more importance in determining student

retention of scientific concepts than is the subject-matter pattern taken by the student in high school.

2. Of the subject-matter patterns studied, a combination of two or more years of Vocational Agriculture plus two or more years of basic science courses gave students the best understanding and retention of scientific concepts.
3. It is possible for students to take two or more years of Vocational Agriculture plus two or more years of basic science courses in high school as indicated by the fact that over 13% of the students studied had been able to so enroll.
4. As a college preparatory course, Vocational Agriculture is comparable to any other course and when in combination with science courses such as chemistry, botany, biology or physics, it becomes an excellent aid to understanding and retention of scientific concepts. □

News and Views of the Profession

The Harper Adams Agricultural College

One of the most interesting letters to cross the desk of the editor has been printed below for the reader:

Dear Sir:

I understand that your Association is in touch with most of the Agricultural Education Establishments in the U.S.A. and that you publish a News Letter for distribution among these Establishments.

The Principal of this College is due to retire next year and we are anxious that this announcement concerning the appointment of a successor should have as world wide a coverage as possible.

I therefore wonder if in the circumstances you would be prepared to insert a notice concerning the appointment in your next News Letter. Anticipating your co-operation I enclose the form of notice which has been inserted in other publications and if of course you wish to make a charge we shall be only too pleased to pay it.

Thanking you for your co-operation,
Yours faithfully,
/signed/

S. B. Williams, Solicitor
Clerk to the Governors

The form of notice from Mr. Williams was as follows:

Harper Adams Agricultural College

The Governors of Harper Adams Agricultural College, Newport, Shropshire, England, invite applications for the post of Principal of the College. Applicants should hold an agricultural degree and have substantial administrative and educational experience. Forms of application which will state the salary and other conditions of appointment should be applied for from S. B. Williams, Clerk to the Governors, 60, High Street, Newport, Shropshire, and must be returned to him by 1st November 1961.

Editor's note: Even though the date is past, it was believed that the reader would be as interested as the editor was. □

Knebel Heads Texas A & M Department



Dr. Earl H. Knebel, superintendent of schools at Cameron, Texas, became professor and head of the Texas A. and M. College Department of Agricultural Education on September 1, Dr. G. M. Watkins, director of agricultural instruction, has announced.

The educator, a former agricultural education teacher at A. and M., succeeded E. V. Walton, who entered private business. Knebel left A. and M. in 1960 to become superintendent of schools at Cameron. He has had wide experience in the education field.

"In Dr. Knebel we find an ideal combination of experience as vocational agriculture teacher, college teacher and research man, and a public school administrator," Watkins

(Continued on following page)

NVATA Region III State Officers Conference

Pictured below is the delegation of state officers attending the Region III Conference. The meeting was held in River Falls, Wisconsin, on the campus of Wisconsin State College, June 26-27, 1961. Dean R. J. Delorit, of the School of Agriculture, was the congenial host for the Conference.



Left to right, front row—G. R. Cochran, Minn. (partially pictured); Norris Fagerland, N. Dak.; Don Davison, N. Dak.; Leo Keskinen, Minn.; Ernest Wingen, S. Dak.; Art E. Weiner, Wisc. Standing: Mark Murray, Wisc. Left to right, second row—Dale C. Aebischer, Wisc.; R. J. Delorit, Wisc.; Harry Pierce, Minn.; Doug. Bade, Minn.; Ed Persons, Minn.; Norval Utemark, Neb.; Glenn Nelson, Neb.; Dewain Englund, Minn.; Harold Crawford, Iowa; Francis Baldus, Iowa. Back row, left to right—V. D. Rice, N. Dak.; Murray Pearthree, Minn. (Morton Salt); Paul Day, Minn.; Glen Edin, Minn.; Wayne Broecker, Minn.; Leo Grosskreutz, Wisc.; Orin Schnieder, Neb.; Ronald Ganzel, Neb.; and A. H. Townsend, Iowa.

Note: Others that attended some of the conference, but were not in the picture: S. D. Vigness, S. Dak.; Clarence Hall, S. Dak.; James Limberg, S. Dak.; Raymond Wall, Wisc.; Gary Wiegand, Minn.; Kenneth Wall, Wisc.; Maynard Harms, Minn.; Richard Wellton, Neb.; Wm. McVay, Indiana; Louis W. Willson, Illinois. □

said. "From this background we expect excellent leadership in our agricultural education activities."

The new department head was raised on a wheat and cattle ranch in Montana. He was graduated with a BS degree in agriculture in 1946 at Montana State College. His master of education degree came in 1951 at Texas A. and M., and his doctorate in 1955 at Oklahoma State University.

He taught vocational agriculture one year in Montana and six years at Hamilton, Texas.

The teacher's dissertation for his doctorate concerned "An Analysis of Factors Contributing to Effective Programs of Vocational Agriculture."

Knebel's teaching experience at A. and M. began in 1955 as an assistant professor. He rose to associate professor before going to Cameron.

His military experience includes three years in the Air Force as a bomber pilot during World War II, a service for which he was awarded the Distinguished Flying Cross and Air Medal with three Oakleaf Clusters. He is now a captain in the Air Force Reserves.

Knebel is married, has one daughter, and is a member of the Methodist Church. □

E. V. Walton Consultant for Schools



E. V. Walton, resigning head of the Department of Agricultural Education, Texas A & M College, said that the problems of in-school youth constitute the most pressing area of public school education. The nationally known educator pointed out that there is a direct relationship between academic, personal and vocational problems and academic achievement. In schools where Walton has set up faculty-centered guidance and counseling problems, academic achievement increased thirty-three percent, average daily attendance increased six percent and graduates were placed according to their abilities and interests.

The resigning A. and M. professor has been a member of the A. and M. staff since 1946 and has been professor and head of the Department of Agricultural Education since 1953.

He will be engaged in providing consultative services for public schools and will have over 12,000 school students in process of receiving faculty-centered guidance and counseling programs each year.

In resigning from A. and M. College, Walton paid high tribute to the support the college administration has given teacher education in recent years but stated that in-service training in the public schools was urgently needed.

Walton's work in guidance and counseling has won state and national recognition. He is a member of Who's Who in American Education, The American Vocational Association and numerous other professional organizations. He has served as a consultant in guidance and counseling in Iowa, Indiana, Florida and to numerous schools in Texas.

One unique feature of Walton's in-service training program in public schools is an education program for parents with problem children. Walton says that systematic training for parents can do much to reduce delinquency, solve family problems and raise the level of academic performance.

Walton will have his headquarters in Bryan with consultant staff members conveniently located throughout the state. Among other centers, Walton will assist in developing guidance and counseling programs in Cameron, Columbus, Rosenberg, Bloomington, Tide Haven, Goliad, Graham, Bryson, Woodson, Rock Island and Premont next year.

During Walton's tenure as head of the Agricultural Education Department, he was effective in developing one of the nation's outstanding in-service training programs for teachers of vocational agriculture. During his tenure the Adult Education Specialist Program for teachers of vocational agriculture was added, the bulletin supply of Texas A. and M. was made available to teachers of vocational agriculture, summer short courses were made available, and curriculum changes including orientation into agriculture, guidance and counseling, and revision to meet modern needs was stressed. Walton urged the organization of a catalogue of resource people for the use of teachers of vocational agriculture and the pilot program, now adopted state wide, was proven by the A. and M. Agricultural Education Department. He stressed the importance of the now growing Young Farmer Program. □

Harold Urton Honored for Twenty-Five Years as State Supervisor



Harold E. Urton, Head State Supervisor of Agricultural Education in South Dakota, was given special recognition at the 1961 annual conference of vocational agriculture teachers, August 3. An award plaque, presented by the South Dakota Agriculture Teachers Association to Mr. Urton, marks the completion of twenty-five years as supervisor in South Dakota. In the picture above, Mr. and Mrs. Urton look over the honor plaque presented him.

Urton has served for two years as the Central Regional member of the FFA Board of Directors; served in numerous official capacities for the Central Regional Conference of State Supervisors and Teacher Trainers in Agricultural Education; been active in the AVA and NVATA; served for many years as treasurer of the state's vocational association and Hickory Stick, the state's schoolmen's organization, of which he is a past Big Stick. He is a member of the South Dakota Agricultural Coordinating Committee, the Soil Conservation Society, and the Rural Safety Council.

He holds bachelor's and master's degrees from South Dakota State College, and has been honored by that institution for his outstanding professional service to education. During his tenure of service as state supervisor, the state's FFA membership has increased to over 3,000. □

Burrow a while and build,
broad on the roots of things.

—Browning

Quarles Joins Agricultural Education Staff at East Texas State College



signed to accept a position in biological sciences at the same institution.

Dr. Norman K. Quarles assumed the duties of instructor of Agricultural Education at East Texas State College on July 15, 1961. Dr. Quarles replaces Dr. Zeno E. Bailey who has re-

signed to accept a position in biological sciences at the same institution. Quarles is a native of Anderson County in Central East Texas, having been born and reared on a farm in the Slocum community. His experience includes a total of twenty-two years of teaching vocational agriculture in the public schools of Texas. The last sixteen years were at the Nacogdoches High School, Nacogdoches, Texas. He served with the Navy from 1943 to 1945.

Quarles is a graduate of the Agricultural and Mechanical College of Texas where he received both his B.S. and M.Ed. degrees. The Ed.D. degree was received from the University of Houston in 1954. The title of his dis-

sertation was *A Study to Identify and Describe the Agricultural Characteristics and Practices in Six Selected Counties of Central East Texas*.

He is a member of the Texas Vocational Association, the American Vocational Association, the Texas State Teachers Association, Texas Forestry Association, the National Association of Doctors in the United States, American Association of Teacher Educators in Agriculture, and Phi Delta Kappa. Dr. Quarles also has Honorary State Farmer and Honorary American Farmer degrees. □



LIVESTOCK AND POULTRY PRODUCTION by Clarence E. Bundy and Ronald V. Diggins. Published by Prentice-Hall, Inc., Englewood Cliffs, New Jersey, 674 pp., illustrated. Second edition, 1961. Price \$5.90 less school discount.

This second edition of *Livestock and Poultry Production* is enlarged and includes a broad presentation of material on the factors involved in the production, management, and marketing problems in connection with livestock and poultry enterprises.

The text is written so as to be easily understood. The first four chapters give the reader a basic understanding of what food nutrients are, and what feeds contain in the way of nutrients. The student may also gain basic knowledge of how ruminants and simple-stomached animals digest their food. A very excellent chapter is presented on measuring the value of feeds. It presents the method of figuring the worth of a feed by using the T.D.N. it contains and dividing it into the cost per bushel, pound, or ton to determine the cost per unit of feed value. It also explains how quality affects the feed value within the same feed. The chapter ends with a discussion of commercial formulas. These factors are all important in efficient livestock production and need to be understood by the present and prospective producer.

The remaining 32 chapters of this book are devoted to pork production, beef production, dairy production,

sheep production, and poultry production. The emphasis given to each of these areas pertains to industry, selection of breeding and feeding stock, feeding and management of the breeding animals and managing and feeding market animals as well as products.

There are three special chapters in this text. One is devoted to the dual-purpose cattle, another covers the area of cattle diseases and parasites, and one covers inheritance and reproduction.

The book is well illustrated and can be recommended for use in vocational agriculture departments.

Warren G. Kelly
Associate Professor
Agricultural Education
West Virginia University

THE FARM SHOP by T. J. Wakeman and Vernon Lee McCoy. The Macmillan Company, New York, N. Y., 597 pp., 1960. Net price \$4.20.

This new book deals largely with practices and skills taught in the farm shop area of farm mechanics. The language is simple, and the procedures and descriptions are clear and definite. More than 450 excellent photographs and line drawings are used in illustrating good shop practice. The book also contains drawings and descriptions for 70 shop projects designed to develop shop skills. Thirty frequently used data tables are also included.

The book should be particularly useful on the ninth- and tenth-grade level where farm mechanics is taught as an integrated part of a four-year program of vocational agriculture. Some may consider the book somewhat heavy on woodwork, hand tools, and forge work and somewhat light on electricity, farm plumbing, farm masonry, and machine shop practice. However, one may expect these phases of farm shop to be more completely covered in other areas of farm mechanics.

The Farm Shop should be considered a welcome addition to the meager supply of good up-to-date farm mechanics text or reference books on the high school level.

The authors of the book are well known in their field and members of the staff at Virginia Polytechnic Institute. Mr. Wakeman is Professor of Farm Mechanics Education, and Mr. McCoy is Farm Shop Specialist. Alvin H. Hollenberg, Specialist in Farm Mechanics in the U. S. Department of Health, Education and Welfare served as consulting editor for the authors.

Floyd Cox,
Teacher Trainer,
Kentucky

MILK PRODUCTION AND PROCESSING by Henry F. Judkins and Harry A. Keener. John Wiley and Sons, Inc., New York, N. Y., 452 pp., illustrated, 1960. Price \$7.95.

This basic book deals almost equally with milk production and milk processing. The first half is devoted to producing milk. Chapters in this part of the book include the scope of the dairy industry, essentials of successful dairy farming, the properties of milk, milk secretion, dairy breeds, breeding, raising herd replacements, feeding and feed handling, housing, records, and maintaining a healthy herd.

The last half of the book contains chapters which deal with testing milk (for butterfat, milk solids, and quality), essentials in producing and handling quality milk, processes in dairy operations, marketing milk, ice cream making, buttermaking, cheesemaking, other processed dairy products, and the food value of milk.

The book is thorough, specific for a basic text, and up-to-date. It is illustrated with photographs and drawings. Thirty-six tables which should be useful in teaching are included. The Appendix contains over 35 pages of useful information for the dairyman.

The book was written as a text for beginning students in college and for advanced high-school students in specialized dairy-farming areas. It should be easily read and understood by juniors and seniors in high school.

Henry F. Judkins is Secretary-Treasurer of the American Dairy Science Association. He was formerly Head of the Dairy Department at the University of Massachusetts. Harry A. Keener is Professor of Dairy Science and Director of the New Hampshire Experiment Station at the University of New Hampshire.

George L. Luster,
Teacher Trainer,
University of Kentucky

MARKETING POLICIES FOR AGRICULTURE by James R. Bowring, Herman M. Southworth, and Frederick V. Waugh. Prentice-Hall, Inc., Englewood Cliffs, N. J., 1960. 276 pp.

This is an interesting book. The authors attempted to handle technical problems in marketing in a manner that almost anyone can grasp. However, some understanding of modern concepts of marketing is needed to appreciate some parts of the book, such as the chapter on "The Principles of Market Allocation."

The authors handle controversial questions in marketing by raising the issue, suggesting possibilities, and leaving the final decision to the reader. In fact, much attention is paid to decision-making. Perhaps a more accurate title for the book would be "Marketing Decisions for Agriculture."

Small matters objectionable to some people are: lack of a summary at the end of each chapter; no questions or references at the end of some chapters; some questions are really two or three questions in one; the four sections of the book are not clearly defined, an introduction to each section would have helped; some over-lapping of materials in chapters, such as chapter 20, "Government in Marketing," and chapter 27, "Role of Government."

Teachers of agriculture could use this book to get a better understanding about current problems and issues in marketing. It should be a good reference for adults and advanced high school boys interested in understanding principles of marketing.

C. C. Scarborough
Teacher Trainer,
North Carolina

SOIL EROSION: SOIL EROSION BY WIND AND MEASURES FOR ITS CONTROL ON AGRICULTURAL LAND, prepared by Agricultural Engineering Branch, Land and Water Development Division of Food and Agriculture Organization of the United Nations, 81 pp., 1960. Price \$1.00.

The final draft of this book was written by Dr. J. S. Robins, Research Division of Agriculture, Fort Collins, Colorado. Materials for the publications were supplied by Soil Conservation Authority,

Victoria, Australia and by various field officers of FAO.

The book gives a good discussion of occurrence and damage caused by wind erosion of soils and the scope and serious nature of the problem in many agricultural areas. The book is well written and illustrated with numerous photographs. A sizeable list of selected references is included for the use of those who desire additional information on specific phases of the subject.

There are five chapters in the book. Four pages are devoted to a summary of each chapter. The five chapters discuss the following:

- I. Occurrence of soil erosion by wind
- II. The process of soil erosion by wind
- III. Measures to control soil erosion by wind
- IV. Soil erosion by wind in lesser developed countries
- V. Legislation and collective action to control wind erosion

The book is written on the level of first-year college students and could be used as a reference for vocational agriculture students in areas where wind erosion is a problem.

William Judge, Supervisor
Agricultural Education
State Department of Education
Frankfort, Kentucky

THE DYNAMICS OF GROUP DISCUSSION, A Leaders Handbook, by D. M. Hall. The Interstate Printers and Publishers, Inc., Danville, Illinois, 89 pp., 1961. Price \$1.00.

This is a how-to-do-it handbook for discussion leaders. It is a condensed version of Hall's recent book "Dynamics of Group Action" (1960). It tells you how to make the group function as a democratic organization. The author identifies all of the individual roles that are usually played in a group meeting. There is the censor-blocker, blamer-dodger, the submitter, and many others that are easily recognized.

This is a booklet that will serve as a "road map" for leaders to use in keeping their groups on the right course of action. It gives a brief treatise on the usual "pit falls" of group leadership. It then tells how to properly form the group, steps to take in defining the group problems and, most important, give a step-by-step procedure in solving the group problems.

The Dynamics of Group Discussion is divided into three sections—Section I, Group Dynamics; Section II, How to Solve a Problem; and Section III, How Groups Mature. It provides many practical suggestions for the development of sound methods and skills that can make group work more interesting and worthwhile. It contains an extensive index and many topical cross references and footnotes. It includes sample forms for surveys, group selection blanks, "buzz session" cards, evaluation forms, and the like.

This leader's handbook should be valuable to all workers in agricultural education. It will be helpful to supervisors, teacher educators and teachers of agriculture in working with FFA and

YFA leaders, and to other educators and various lay groups.

Dr. D. M. Hall, the author, is associate Professor of Agricultural Extension at the University of Illinois. His professional life has been devoted to agricultural education. He began as a 4-H Club agent and continued as a vocational agriculture teacher, a college instructor and a research worker. His major interests have been in guidance, program building and evaluation.

Carl E. Lamar
Teacher Trainer
University of Kentucky

ADVANCING FRONTIERS OF SCIENCE SERIES, General Editor, Prof. Dr. Raghu Vira, J22 Hauz Khas Enclave, New Delhi 16 (India), 5th July, 1961.

We have great pleasure in announcing to you that we are initiating a two-monthly research journal entitled *Advancing Frontiers of Plant Sciences*. It will include original work on plant morphology and physiology, systematic botany, phytopathology, economic botany, plant cytology and genetics, agronomy, horticulture, paleobotany and all other domains of Plant Sciences. The journal would be international in character and hence the languages admitted could be English, French, German and Spanish.

Along with the journal we shall also undertake separate monographs and books in the series *Advancing Frontiers of Science*.

We understand that very often it is not possible to publish all good articles as early as one would desire. The main reason is the non-availability of space in the research journals. May be that now and then you also have a surplus of original research articles. We wonder if it would be possible for you to pass on such articles to us for inclusion in our research journal *Advancing Frontiers of Plant Sciences*. Contributions containing diagrams and illustrations would also be welcome.

Submitted by:
Prof. Dr. Raghu Vira

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Punt, Pass, and Pray . . .

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teach moral and spiritual values to others. Parents have been known to say, "I want my boy to take a course with Mr. So and So. He is such a fine person. He would be a good influence on any boy." Are you that kind of a vocational agriculture teacher?

If our rural youth and out-of-school adults are to reach the highest level of human character, there must be a more definite aggressive approach to the teaching of these values by competent, dedicated vocational agriculture teachers. Our society needs more than a "punt, pass, and pray" philosophy for the teaching of moral and spiritual values in our vocational agriculture departments.

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Suzanne Hall, Tolt-Carnation Chapter Sweetheart and daughter of Lennes Hall, assistant manager of Carnation Milk Farms, presenting the first place Holstein-Friesian banner to Wayne Miller representing the Burlington-Edison Chapter, winners of the banner.



Julian Carter (right), newly appointed director of Oswegatchie Camp and retiring chairman of the New York Future Farmer Leadership Training Foundation which has operated the camp since 1946, responds to congratulations by Kenneth Wells, acting board chairman, as Dr. Harold L. Noakes, who retired as Camp Director, looks on. Noakes had served as Camp Director since its inauguration in 1946. Dr. Noakes is an Associate in the State's Bureau of Agricultural Education, and Carter, president of NVATA during 1959-60, was advanced from teacher of agriculture at Wellsville to an area consultant in Agricultural Education on March 1, 1961.

Stories in Pictures



The North Carolina Vocational Agriculture Teachers Conference was held at Carolina Beach during the first full week in June, 1961. Left to right on the front row were Dawson and Folks, vocational agriculture teachers; Dr. Carsie Hammonds, Head, Agricultural Education, University of Kentucky; Dr. Gerald B. James, Director, Vocational Education, N. Car.; Dr. H. M. Hamlin, Chairman, Agric. Ed., Univ. of Illinois; Dr. J. B. Kirkland, Dean, School of Education, N. C. State; and Dr. Cayce Scarborough, Head, Agric. Ed., N. C. State.

